IN THE CLAIMS:

Claims 1 through 9 were previously cancelled. Claims 11, 17, 18, 22, 23, and 26 have been amended herein. All of the pending claims are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

Listing of Claims:

1.-9.   (Cancelled)

10.   (Previously presented) A method for estimating the cardiac output of an individual, comprising:

determining a carbon dioxide elimination (V_{CO_2}) of the individual for a before re-breathing period and for a during re-breathing period;

calculating a carbon dioxide elimination difference between the carbon dioxide elimination of the before re-breathing period and the carbon dioxide elimination of the during re-breathing period;

estimating a partial pressure of carbon dioxide in alveoli (P_ACO_2) of the individual for the before re-breathing period and for the during re-breathing period based on partial pressure of end tidal carbon dioxide ($PetCO_2$) measurements of the individual during the before re-breathing period and during the during re-breathing period, respectively;

converting each estimation of the partial pressure of carbon dioxide in alveoli to a carbon dioxide content (C_{CO_2});

calculating a carbon dioxide content difference between the carbon dioxide content of the before re-breathing period and the carbon dioxide content of the during re-breathing period; and

dividing the carbon dioxide elimination difference by the carbon dioxide content difference to estimate cardiac output.

11.   (Currently amended) The method of claim 10, wherein determining the carbon dioxide elimination comprises accounting for at least one of serial-dead-space- deadspace and parallel-dead-space deadspace.

12.   (Previously presented) The method of claim 10, wherein determining the carbon dioxide elimination comprises accounting for functional residual capacity.

13.   (Previously presented) The method of claim 12, wherein accounting for functional residual capacity comprises determining a corrected carbon dioxide elimination (VCO_2 corrected) during at least one of the before rebreathing period and the during rebreathing period as follows:

$$VCO_2\text{ corrected} = VCO_2 + FRC \times \Delta Pet_{CO_2}/P_{bar},$$
where VCO_2 is the carbon dioxide elimination that has been determined, ΔPet_{CO_2} is the breath-to-breath change in Pet_{CO_2}, and P_{bar} is barometric pressure.

14.   (Previously presented) The method of claim 10, wherein determining the carbon dioxide elimination for at least one of the before rebreathing period and the during rebreathing period comprises determining an average carbon dioxide elimination over a period of time.

15.   (Previously presented) The method of claim 14, wherein determining the average carbon dioxide elimination over a period of time comprises determining the average carbon dioxide elimination over a plurality of breaths.

16.   (Previously presented) The method of claim 14, wherein determining the average carbon dioxide elimination is effected at at least about twenty-five seconds into the during rebreathing period.

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17.   (Currently amended) The method of claim 10, wherein estimating the partial pressure of carbon dioxide in alveoli includes accounting for at least one of functional residual capacity and carbon dioxide in parallel dead space deadspace.

18.   (Currently amended) The method of claim 17, wherein accounting comprises employing the following formula:

$$P_{CO_2\ PDS}(n)=[FRC/(FRC+V_t)] \cdot P_{CO_2\ PDS}(n-1) +$$
$$(P_{bar} \cdot (([Vi_{CO_2} + deadspace \cdot (Pet_{CO_2}(n-1)/P_{bar})]/V_t) \cdot$$
$$[V_t/(V_t+FRC)])),$$

where (n) represents one breath, (n-1) represents a prior breath, FRC is the functional residual capacity, V_t is the tidal volume, Vi_{CO_2} is the volume of inspired carbon dioxide, $P_{CO_2\ PDS}$ is the partial pressure of carbon dioxide in the parallel dead space, deadspace, and P_{bar} is barometric pressure.

19.   (Previously presented) The method of claim 10, wherein converting at least one estimation of the partial pressure of carbon dioxide in alveoli to a carbon dioxide content comprises predicting a stable carbon dioxide content.

20.   (Previously presented) The method of claim 19, wherein predicting the stable carbon dioxide content comprises plotting the partial pressure of carbon dioxide in alveoli from at least one of the before rebreathing phase and the during rebreathing phase against a breath-to-breath change in a content of carbon dioxide in blood in the alveolar capillaries (ΔC_ACO_2).

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21.   (Previously presented) A method for estimating the cardiac output of a subject, comprising:

estimating a carbon dioxide elimination of the subject for a before re-breathing period and for a
      during re-breathing period;

estimating a carbon dioxide content in blood passing by the alveoli of the subject for the before
      re-breathing period and for the during re-breathing period;

dividing a difference between carbon dioxide elimination from the before and during rebreathing
      periods by a difference between carbon dioxide content from the before and during
      rebreathing periods to estimate cardiac output.

22.   (Currently amended) The method of claim 21, wherein estimating the carbon dioxide elimination or estimating the carbon dioxide content for at least one of the before and during rebreathing periods comprises considering at least one of serial dead space, deadspace, parallel dead space, deadspace, and functional residual capacity.

23.   (Currently amended) A method for estimating the cardiac output of a subject, comprising:

estimating a carbon dioxide elimination of the subject and a carbon dioxide content of blood of
      the subject during baseline respiration;

providing for a change in effective ventilation of the subject;

estimating a carbon dioxide elimination of the subject and a carbon dioxide content of blood of
      the subject following the change in effective ventilation;

and dividing a change in the carbon dioxide elimination from before to after the change in
      effective ventilation by a change in the carbon dioxide content from before to after the
      change in effective ventilation to estimate cardiac output.

24.   (Previously presented) The method of claim 23, wherein providing for the change in effective ventilation comprises causing the subject to rebreathe previously exhaled gases.

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25.   (Previously presented) The method of claim 23, wherein providing for the change in effective ventilation comprises having the subject inhale gases including an above-ambient amount of carbon dioxide.

26.   (Currently amended) The method of claim 23, wherein estimating the carbon dioxide elimination or estimating the carbon dioxide content before or after the change in effective ventilation comprises considering at least one of serial ~~dead space,~~ deadspace, parallel ~~dead space,~~ deadspace, and functional residual capacity.